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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,220	10/24/2003	Iraj Parchamazad	D9433A	2269

35037 7590 05/03/2007  
WAGNER, ANDERSON & BRIGHT, LLP  
3541 OCEAN VIEW BLVD  
GLENDALE, CA 91208

EXAMINER
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CANTELMO, GREGG

ART UNIT	PAPER NUMBER
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1745

MAIL DATE	DELIVERY MODE
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05/03/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/693,220

Applicant(s)

PARCHAMAZAD, IRAJ

Examiner

Gregg Cantelmo

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12/11/06 AND 2/5/07.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,7-12,14-19 and 25-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7-12,14-19 and 25-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. In response to the amendments received December 11, 2006 and February 5, 2007:

- a. Claims 1, 3-5, 7-12, 14-19 and 25-32 are pending. Claims 2, 6, 13 and 20-24 have been cancelled as per Applicant's request;
- b. The replacement drawings have been entered;
- c. The specification objections have been overcome in light of the amendment;
- d. The claim objection has been overcome in light of the amendment;
- e. The 112 rejections have been overcome in light of the amendment;
- f. The rejections to Autenrieth are withdrawn.
- g. The remaining prior art rejections of record are withdrawn pending clarification to the outstanding 101 and 112 issues below. Applicant should be advised that the prior art of record may be reapplied upon clarification of these current rejections and that any amendment to the claims after final would require significant further consideration and/or search and most likely will not be entered.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the coolant system and fuel cell power system unconnected to one another must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Applicant should be advised that a showing of this claimed combination would appear to introduce new matter into the specification and any drawing changes in combination with claim amendments should be carefully considered for compliance under 112 1<sup>st</sup> and 2<sup>nd</sup> paragraph.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 1745

3. Claims 1, 3-5, 7-12, 14-19 and 25-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims currently recite various features which are not disclosed in the original description, for example the claims recite a coolant system which includes a radiator and that the fuel cell system and coolant system are unconnected however there is no support for a radiator component in the original written description nor does the specification teach that the fuel cell system and coolant system are unconnected. See Fig. 11 as an example wherein the fuel cell system 300, heat exchanger and cooling unit are all shown in connection.

Claims 1, 3-5, 7-12, 14-19 and 25-32 also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either an asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

The claimed invention now recites that the fuel cell system and coolant system are unconnected however the specification does not teach or suggest any such relationship. Furthermore it is apparent the these two components are in fact connect as shown throughout the figures to provide the requisite heat exchange between the fuel cell system and coolant system. Therefore the invention as claimed is not commensurate with the original disclosed invention, is not operative as claimed relative

Art Unit: 1745

to the disclosure and thus lacks utility. Thus one of ordinary skill in the art would not have understood the claimed unconnected state between the fuel cell system and coolant system since it would appear that these two systems are in fact connected to provide for heat transfer between the fuel cell and coolant system.

4. Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 9 recites a fuel combination which was neither appreciated nor reasonably disclosed in the original description. Claim 1 requires a propane fuel cell-based system whereas claim 9 requires a direct-fuel fuel cell system. Propane is not a direct-fuel and requires reforming prior to fueling a fuel cell system. Thus the combination of a propane fuel and a direct-fuel as required in claim 9 is a combination which introduces new matter.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-5, 7-12, 14-19 and 25-32 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The term "substantially" in claims 1, 3-5, 7-12, 14-19 and 25-32 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and

Art Unit: 1745

one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. At best the original description recites the term “relatively pure hydrogen” which in itself is not held to be the exact same scope as that of “substantially pure hydrogen”. Even further however, neither the claims nor specification in it’s entirety provides any definition or reasonable explanation as to what the term “substantially pure” or “relatively pure” fully encompasses. Thus the claimed term is not adequately defined and held to be indefinite.

6. Claims 1, 3-5, 7-12, 14-19 and 25-32 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: The claims recite that the fuel cell system is unconnected to the coolant system, however this lack of connection is not readily understood since it is apparent that both the coolant system and fuel cell system are in a heat exchange relationship between one another and thus thermally connected. See Fig. 11 as an example wherein the fuel cell system 300; heat exchanger and cooling unit are all shown in connection.

7. The scope of claim 9 is not clear in the construct of amended claim 1. Claim 1 requires a reformer and a propane fuel in the fuel cell system but claim 9 recites that the fuel cell is a direct-fuel fuel cell. Direct-fuel fuel cells, such as a direct methanol fuel cell system is not known to use a reformer since the fuel is provided directly to the fuel cell in the absence of a reformer. Furthermore propane fuel as required in claim 1 would

Art Unit: 1745

not have been recognized as a direct-fuel source and require the presence of the reformer (the reformer as provided in claim 1). One of ordinary skill in the art would not have found the combination of a reformer as required in claim 1 to be employed in a direct-fuel fuel cell system and thus the claimed combination is held to be indefinite.

### ***Conclusion***

8. Due to the significant number of 112 1<sup>st</sup> and 2<sup>nd</sup> paragraph issues above, no prior art rejections can be reasonably presented at this time. Notably the prior art of record which have both a fuel cell system and coolant system are connected to one another in order to provide the requisite heat exchange to the system. While this appears to be a similar configuration to the disclosed invention of the instant application, the claimed invention clearly requires an unconnected state between these two systems and thus is not held to be clearly understood and requires Applicant's clarification prior to application of prior art.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any



Art Unit: 1745

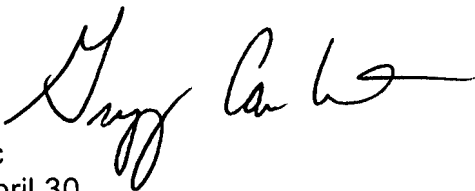
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is 571-272-1283. The examiner can normally be reached on Monday to Thursday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

gc  
April 30



Gregg Cantelmo  
Primary Examiner  
Art Unit 1745